

## IN THE CLAIMS:

1. A method of fabricating a thin-film compound solar cell having an n-type buffer layer formed therein for providing a heterojunction with a p-type compound semiconductor light absorbing layer formed on a back electrode, wherein the buffer layer is formed on the light absorbing layer by chemical bath deposition using an aqueous solution in which a surface of the light absorbing layer is dipped and from which particles deposit on said surface to form the buffer layer thereon.
2. A method of fabricating a thin-film compound solar cell as defined in claim 1, wherein sizes of particles to be deposited on the light absorbing layer is changed from small to larger by increasing a temperature of the aqueous solution.
3. A method of fabricating a thin-film compound solar cell as defined in claim 1, wherein the buffer layer of InS is formed by using the aqueous solution of indium chloride and thioacetamide.
4. A method of fabricating a thin-film compound solar cell as defined in claim 1, wherein different quality of deposits in the buffer layer are formed by regulating a pH value of the aqueous solution from a small value to a higher value.
5. A method of fabricating a thin-film compound solar cell as defined in claim 1, wherein the process of forming the buffer layer comprises a first step of forming a first step layer of particles on the light absorbing layer by dipping said layer in the aqueous solution at a room temperature for a preset time, a second step of overlaying a second step layer of particles larger in size than the particles of the first step layer on the light absorbing layer dipped in the aqueous solution by gradually increasing temperature of the solution to a preset temperature for a second preset time and a third step of forming

a third step layer of particles larger in size than the particles of the second step layer on the light absorbing layer dipped in the aqueous solution for a third preset time.

6. A method of fabricating a thin-film compound solar cell as defined in claim 5, wherein a pH value of the solution is regulated from a small value to a higher value in the third step of forming the third step layer.

7. A thin-film compound solar cell having an n-type buffer layer formed therein for providing a heterojunction with a p-type compound semiconductor light absorbing layer formed on a back electrode, wherein the buffer layer is composed of particles of n-type semiconductor material.

8. A thin-film compound solar cell as defined in claim 7, wherein the buffer layer is composed of particles of n-type semiconductor material and has a structure in which the particles are gradually or stepwise larger in size in a direction outward from the light absorbing layer.

9. A thin-film compound solar cell as defined in claim 7, wherein the buffer layer is of InS.

10. A thin-film compound solar cell as defined in claim 7, wherein the buffer layer is formed of deposits having lower pH value in lower layers and deposits having higher pH value in higher layers.